

What is claimed is:

1. A method of fracturing a subterranean formation comprising the steps of:
injecting a fracture fluid into a centrifugal pump;
injecting a controlled amount of a sand suspension into the centrifugal pump;
discharging a mixture of the sand suspension and fracture fluid from the centrifugal pump having a certain concentration;
monitoring the concentration of the mixture;
varying the amount of the sand suspension being injected into the centrifugal pump with a control pinch valve until a desired concentration of the mixture is attained; and
pumping the mixture downhole into the subterranean formation.
2. A method of fracturing a subterranean formation according to claim 1 further comprising the step of injecting a liquid additive into the centrifugal pump.
3. A method of fracturing a subterranean formation according to claim 1 wherein the fracture fluid comprises a liquid selected from the group consisting of water, gelling agent, brine, acid, oil, foam and mixtures thereof.
4. A method of fracturing a subterranean formation according to claim 3 wherein the oil has been recovered from the subterranean formation being fractured.

5. A method of fracturing a subterranean formation according to claim 1 wherein the sand suspension comprises a mixture of xanthan in a concentration of about 60 lb./gal and sand in a concentration of about 20-24 lb./gal.

6. A method of fracturing a subterranean formation according to claim 5 wherein the sand suspension further comprises a water.

7. A method of fracturing a subterranean formation according to claim 2 wherein the liquid additive comprises a liquid selected from the group consisting of a breaker fluid, a clay control fluid, a cross-linking agent, a pH control agent and mixtures thereof.

8. An apparatus for fracturing a subterranean formation comprising:
a control pinch valve that meters flow of a sand suspension;
a centrifugal pump having an inlet into which the sand suspension is injected and an outlet out of which a mixture of the sand suspension and a fracture fluid is discharged; and
a pump that pumps the mixture discharged from the centrifugal pump downhole into the subterranean formation.

9. An apparatus for fracturing a subterranean formation according to claim 8 further comprising an electronic control system that comprises a flow meter and densometer that measure the flow rate and viscosity, respectively, of the mixture being discharged from the

centrifugal pump and a microprocessor connected to the flow meter, densometer, and control pinch valve.

10. An apparatus for fracturing a subterranean formation according to claim 8 further comprising another centrifugal pump disposed between the control pinch valve and the centrifugal pump that injects the sand suspension into the centrifugal pump.

11. An apparatus for fracturing a subterranean formation according to claim 8 further comprising a positive displacement pump that injects a liquid additive into the centrifugal pump.

12. An apparatus for fracturing a subterranean formation according to claim 11 wherein the positive displacement pump is electronically connected to an electronic control system.

13. An apparatus for fracturing a subterranean formation according to claim 8 wherein the downhole pump comprises two positive displacement pumps electrically coupled to one another by a Local Area Network cable.

14. An apparatus for fracturing a subterranean formation according to claim 8 wherein the sand suspension comprises a mixture of xanthan in a concentration of about 60 lb./gal, sand in a concentration of about 20-24 lb./gal, and water.

15. An apparatus for fracturing a subterranean formation according to claim 8, wherein the fracture fluid comprises a liquid selected from the group consisting of water, gelling agent, brine, acid, oil, foam and mixtures thereof.

16. An apparatus for fracturing a subterranean formation according to claim 11 wherein the liquid additive comprises a liquid selected from the group consisting of a breaker fluid, a clay control fluid, a cross-linking agent, a pH control agent and mixtures thereof.